

=> fil reg  
 FILE 'REGISTRY' ENTERED AT 16:18:51 ON 01 JUL 2010  
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STRUCTURE FILE UPDATES: 30 JUN 2010 HIGHEST RN 1228750-08-0  
 DICTIONARY FILE UPDATES: 30 JUN 2010 HIGHEST RN 1228750-08-0

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TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

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REGISTRY includes numerically searchable data for experimental and  
 predicted properties as well as tags indicating availability of  
 experimental property data in the original document. For information  
 on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

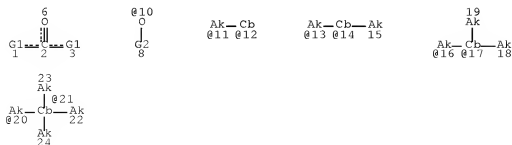
=> d sta que l34  
 L27 STR



VAR G1=3/7  
 NODE ATTRIBUTES:  
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 DEFAULT ECLEVEL IS UNLIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE  
 L29 260014 SEA FILE=REGISTRY SSS FUL L27  
 L30 STR



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VAR G1=OH/10
VAR G2=AK/CB/11/12/13/14/16/17/20/21
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS UNLIMITED

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GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
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STEREO ATTRIBUTES: NONE
L32          SCR 2127 OR 2043
L34          3033 SEA FILE=REGISTRY SUB=L29 CSS FUL L30 NOT L32

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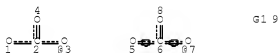
100.0% PROCESSED 197919 ITERATIONS          3033 ANSWERS
SEARCH TIME: 00.00.09

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=> d sta que 150
L27          STR

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NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS UNLIMITED

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GRAPH ATTRIBUTES:
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NUMBER OF NODES IS 9

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STEREO ATTRIBUTES: NONE
L29          260014 SEA FILE=REGISTRY SSS FUL L27
L32          SCR 2127 OR 2043
L37          STR

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NODE ATTRIBUTES:
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DEFAULT ECLEVEL IS UNLIMITED

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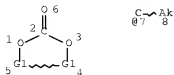
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STEREO ATTRIBUTES: NONE

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L39 16585 SEA FILE=REGISTRY SUB=L29 SSS FUL L37 NOT L32  
 L40 1606 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L39 AND OCOC2/ES AND  
 1/NR  
 L48 STR



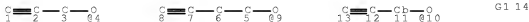
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GRAPH ATTRIBUTES:  
 RSPEC 1  
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE  
 L50 150 SEA FILE=REGISTRY SUB=L40 CSS FUL L48

100.0% PROCESSED 1606 ITERATIONS 150 ANSWERS  
 SEARCH TIME: 00.00.01

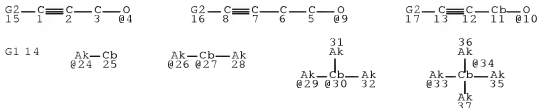
=> d sta que 176  
 L32 SCR 2127 OR 2043  
 L67 STR



VAR G1=4/9/10  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS UNLIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE  
 L70 394859 SEA FILE=REGISTRY SSS FUL L67 NOT L32  
 L71 STR



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VAR G2=H/AK/CB/24/26/26/27/29/30/33/34
NODE ATTRIBUTES:
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CONNECT IS M1 RC AT 9
CONNECT IS M1 RC AT 10
DEFAULT MLEVEL IS ATOM
DEFAULT ELEVEL IS UNLIMITED

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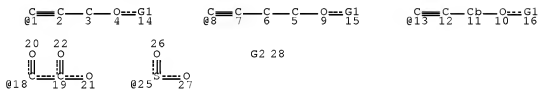
GRAPH ATTRIBUTES:
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NUMBER OF NODES IS 31

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STEREO ATTRIBUTES: NONE
L73      161437 SEA FILE=REGISTRY SUB=L70 CSS FUL L71
L74      STR

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VAR G1=25/18
VAR G2=1/8/13
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ELEVEL IS UNLIMITED

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GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 25

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STEREO ATTRIBUTES: NONE
L76      173 SEA FILE=REGISTRY SUB=L73 SSS FUL L74

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100.0% PROCESSED 161437 ITERATIONS 173 ANSWERS
SEARCH TIME: 00.00.11

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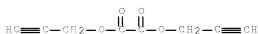
=> d 120 ide can

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L20  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2010 ACS on STN
RN   71573-77-8  REGISTRY
ED   Entered STN:  16 Nov 1984
CN   Ethanedioic acid, 1,2-di-2-propyn-1-yl ester (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Ethanedioic acid, di-2-propynyl ester (9CI)
CN   Oxalic acid, di-2-propynyl ester (7CI)
OTHER NAMES:
CN   Di-2-propynyl oxalate
CN   Bipropargyl oxalate
MF   C8 H6 O4
CI   COM
LC   STN Files:  BEILSTEIN*, CA, CAPLUS, CASREACT, CHEMCATS, USPAT2, USPATFULL

```

(\*File contains numerically searchable property data)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

18 REFERENCES IN FILE CA (1907 TO DATE)  
18 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 152:169798  
REFERENCE 2: 151:550721  
REFERENCE 3: 144:38333  
REFERENCE 4: 143:100421  
REFERENCE 5: 142:481987  
REFERENCE 6: 142:358035  
REFERENCE 7: 142:180441  
REFERENCE 8: 140:93542  
REFERENCE 9: 139:350847  
REFERENCE 10: 138:303922

=> fil hcaplus  
FILE 'HCAPLUS' ENTERED AT 16:19:42 ON 01 JUL 2010  
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FILE COVERS 1907 - 1 Jul 2010 VOL 153 ISS 1  
FILE LAST UPDATED: 30 Jun 2010 (20100630/ED)  
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010  
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 193 bib abs hitind hitstr retable tot

L93 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2007:284298 HCAPLUS Full-text

DN 146:341031

TI Nonaqueous electrolyte solution and secondary lithium battery using the solution

IN Abe, Hiroshi; Takase, Manabu

PA Ube Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 22pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2007066864	A	20070315	JP 2005-335603	20051121
PRAI	JP 2005-228467	A	20050805		
OS	MARPAT 146:341031				

AB The electrolyte solution has an electrolyte salt dissolved on a nonaq. solvent; where the electrolyte solution further contains a specific structured ester compound having alkyleneoxy group, C-C triple bond, formyl group, haloalkyl group, etc. The battery has a cathode, an anode, and the above electrolyte solution.

IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C\*]; H01M0004-02 [I,A]

IPCR H01M0010-36 [I,C]; H01M0010-40 [I,A]; H01M0004-02 [I,C]; H01M0004-02 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes

(electrolyte solns. containing ester compds. with specific structures for secondary lithium batteries)

IT Secondary batteries

(lithium; electrolyte solns. containing ester compds. with specific structures for secondary lithium batteries)

IT 462-76-0 628-82-0, 2-Methoxy ethyl formate 120570-77-6, Diethylene

glycol diformate, uses 153235-99-5 883984-18-7 929294-67-7

929294-68-8 929294-69-9 929294-70-2 929294-71-3 929294-72-4

929294-73-5 929294-74-6

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte solns. containing ester compds. with specific structures for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl

carbonate 623-53-8, Methyl ethyl carbonate 872-36-6

, Vinylene carbonate 7782-42-5, Graphite, uses 14283-07-9, Lithium

tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 346417-97-8,

Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2)

RL: TEM (Technical or engineered material use); USES (Uses)

(electrolyte solns. containing ester compds. with specific structures for secondary lithium batteries)

IT 929294-73-6

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte solns. containing ester compds. with specific structures for secondary lithium batteries)

RN 929294-74-6 HCAPLUS

CN Sulfurous acid, 2-methoxyethyl 2-propyn-1-yl ester (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate 872-36-6, Vinylene carbonate

RL: TEM (Technical or engineered material use); USES (Uses) (electrolyte solns. containing ester compds. with specific structures for secondary lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 616-38-6 HCAPLUS

CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS

CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 872-36-6 HCAPLUS

CN 1,3-Dioxol-2-one (CA INDEX NAME)



L93 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:1292320 HCAPLUS [Full-text](#)

DN 144:38333

TI Nonaqueous electrolyte solution for secondary lithium battery

IN Abe, Koji; Miyosni, Kazuhiro; Kuwata, Takaaki

PA Ube Industries, Ltd., Japan

SO PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005117197	A1	20051208	WO 2005-JP9900	20050530
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2568519	A1	20051208	CA 2005-2568519	20050530
	EP 1772924	A1	20070411	EP 2005-743834	20050530
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, LV, MK, YU				
	CN 1989647	A	20070627	CN 2005-80024923	20050530
	CN 100474688	C	20090401		
	US 20070231707	A1	20071004	US 2006-597652	20061127
	US 7629085	B2	20091208		
	ZA 2006010287	A	20081029	ZA 2006-10287	20061208
	KR 2007024663	A	20070302	KR 2006-727547	20061228
	IN 2006CN04771	A	20070629	IN 2006-CN4771	20061228
PRAI	JP 2004-159283	A	20040528		
	WO 2005-JP9900	W	20050530		
OS	MARPAT 144:38333				
AB	<p>The electrolyte solution contains an electrolyte salt in a nonaq. solvent and contains 0.01-10% S acid ester and 0.01-10% triple bond compound of the formula R1(C.tplbond.C)pR2, R3C.tplbond.C(CR4R5)xOY1, Y2O(CR6R7)xC.tplbond.C(CR8R9)xOY3, Y4O(CR10R11)xC.tplbond.CC.tplbond.C(CR12R13)xOY5, R14C.tplbond.C(CR15R16)xOCO2(CR17R18)xC.tplbond.CR19 or R2OC.tplbond.C(CR21R22)xOYOY6 where R1 = C1-12 alkyl, C3-6 cycloalkyl, or aryl group; R2-R22 = H or C1-12 alkyl, C3-6 cycloalkyl, or aryl groups, p = 1 or 2, x = 1 or 2; R4 and R5, R6 and R7, R8 and R9, R10 and R11, R12 and R13, R15 and R16, R17 and R18, and R21 and R22 may form C3-6 cycloalkyl groups; W = -SO-, -SO2-, -COCO-; and the Y's are carboxylate ester, alkyl carbonyl, or alkyl sulfonyl groups.</p>				
IPCI	H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C*]; H01M0004-02 [ICS,7]; H01M0004-38 [ICS,7]; H01M0004-58 [ICS,7]; H01M0004-66 [ICS,7]				
IPCR	H01M0004-02 [N,C*]; H01M0004-38 [I,C*]; H01M0004-38 [I,A]; H01M0004-58 [I,C*]; H01M0004-58 [N,A]; H01M0004-66 [I,C*]; H01M0004-66 [I,A]; H01M0010-36 [I,C*]; H01M0010-36 [I,A]				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
IT	Battery electrolytes (sulfur acid ester and alkyne compound additives in nonaq. electrolyte solns. for secondary lithium batteries)				
IT	96-49-1, Ethylene carbonate 109-32-7, Propylene carbonate 623-53-0, Methyl ethyl carbonate 21324-40-3, Lithium hexafluorophosphate				
RL:	DEV (Device component use); USES (Uses) (sulfur acid ester and alkyne compound additives in nonaq. electrolyte solns. for secondary lithium batteries)				



IT 536-74-3, Phenylacetylene 1072-53-3 1120-71-4, Propanesultone  
 1633-83-6, Butanesultone 1899-25-8 3741-38-6, Glycol sulfite  
 16156-58-4, 2-Propynyl methanesulfonate 19828-83-2  
 19828-83-2 29619-56-5 61764-71-4 70886-56-5  
 71573-77-8, Di(2-propynyl) oxalate 406725-07-3 530158-20-4  
 870861-60-2  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (sulfur acid ester and alkyne compound additives in nonaq. electrolyte  
 solns. for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 106-32-7, Propylene  
 carbonate 623-53-0, Methyl ethyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (sulfur acid ester and alkyne compound additives in nonaq. electrolyte  
 solns. for secondary lithium batteries)

RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 623-53-0 HCAPLUS  
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 1899-25-8 19828-82-1 19828-83-2  
 61764-71-4 71573-77-8, Di(2-propynyl) oxalate  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (sulfur acid ester and alkyne compound additives in nonaq. electrolyte  
 solns. for secondary lithium batteries)

RN 1899-25-8 HCAPLUS  
 CN 2-Propyn-1-ol, sulfite (2:1) (8CI, 9CI) (CA INDEX NAME)

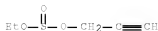


RN 19828-82-1 HCAPLUS  
 CN Sulfurous acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)



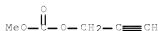
RN 19828-83-2 HCAPLUS

CN Sulfurous acid, ethyl 2-propyn-1-yl ester (CA INDEX NAME)



RN 61764-71-4 HCAPLUS

CN Carbonic acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)



RN 71573-77-8 HCAPLUS

CN Ethanedioic acid, 1,2-di-2-propyn-1-yl ester (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Denso Corp	2002			EP 1202373 A2	HCAPLUS
Denso Corp	2002			JP 2002134169 A	HCAPLUS
Denso Corp	2002			US 200276619 A1	
Mitsubishi Cable Indust	1994			JP 06-223875 A	HCAPLUS
Mitsubishi Electric Cor	2004			WO 0377350 A1	
Mitsubishi Electric Cor	2004			JP 2004265848 A	HCAPLUS
Mitsui Chemicals Inc	2003			JP 2003132946 A	HCAPLUS
Sanyo Electric Co Ltd	2005			JP 2005190754 A	HCAPLUS
Ube Industries Ltd	2000			JP 2000195545 A	HCAPLUS
Ube Industries Ltd	2002			JP 2002100399 A	HCAPLUS
Ube Industries Ltd	2002			JP 2002110234 A	HCAPLUS
Ube Industries Ltd	2002			JP 2002124297 A	HCAPLUS
Wilson Greatbatch Ltd	2002			EP 1213782 A2	HCAPLUS
Wilson Greatbatch Ltd	2002			JP 2002198092 A	HCAPLUS
Wilson Greatbatch Ltd	2002			CA 2353751 A	HCAPLUS
OSC.G 1	THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)				

L93 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:606347 HCAPLUS [Full-text](#)

DN 143:100421

TI Secondary lithium batteries having stable SEI (solid electrolyte interface)

IN Iwanaga, Masato; Inomata, Hideyuki; Oga, Keisuke; Abe, Hiroshi;

Hiyoshi, Kazuhiro

PA Sanyo Electric Co., Ltd., Japan; Uba Industries, Ltd.

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005190754	A	20050714	JP 2003-428675	20031225
	JP 4319025	B2	20090826		
	WO 2005064735	A1	20050714	WO 2004-JP19328	20041224
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MM, MZ, NA, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	CN 1890836	A	20070103	CN 2004-80035854	20041224
	CN 100446335	C	20081224		
	KR 2006113738	A	20061102	KR 2006-712347	20060621
	US 20070178380	A1	20070802	US 2006-584266	20060623
	JP 2009117383	A	20090528	JP 2009-17885	20090129
PRAI	JP 2003-428675	A	20031225		
	WO 2004-JP19328	W	20041224		

## ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The batteries employ carbonaceous anodes, and nonaq. electrolyte solns. containing 0.1-3 weight% of vinylene carbonate and 0.1-2 weight% of di(2-propynyl) oxalate (to the total electrolyte solns.). The batteries show high initial discharge capacity, excellent charge-discharge cycling performance at high temperature, and inhibit gas generation upon repeated usage.

IPCI H01M0010-36 [I,A]

IPCR H01M0002-02 [I,C\*]; H01M0002-02 [I,A]; H01M0004-02 [I,C\*]; H01M0004-02 [I,A]; H01M0004-58 [I,C\*]; H01M0004-58 [I,A]; H01M0010-36 [I,C\*]; H01M0010-36 [N,A]; H01M0010-40 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Carbonaceous materials (technological products)

RL: DEV (Device component use); USES (Uses)

(anode; secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

IT Battery electrolytes

Secondary batteries

(secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

IT 872-36-6, Vinylene carbonate 71573-77-8,

Di(2-propynyl) oxalate

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(additive for electrolyte solution; secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)

(anode; secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (in electrolyte solution; secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

IT 872-36-6, Vinylene carbonate 71573-77-8,  
**Di(2-propynyl) oxalate**  
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
 (additive for electrolyte solution; secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

RN 872-36-6 HCAPLUS  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 71573-77-8 HCAPLUS  
 CN Ethanedioic acid, 1,2-di-2-propyn-1-yl ester (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (in electrolyte solution; secondary Li battery containing carbonaceous anode and electrolyte solution containing gas-suppressing additives)

RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS  
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 616-38-6 HCAPLUS  
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS  
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L93 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2005:283755 HCAPLUS Full-text  
 DN 142:358035  
 TI Nonaqueous electrolyte solution and secondary lithium battery  
 using the solution  
 IN Abe, Koji; Kuwata, Takeshi  
 PA Obe Industries, Ltd., Japan  
 SO PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005029631	A1	20050331	WO 2004-JP13687	20040917
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1672729	A1	20060621	EP 2004-773306	20040917
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1864299	A	20061115	CN 2004-80026823	20040917
CN 100481604	C	20090422		
KR 2006076304	A	20060704	KR 2006-705312	20060316
US 20070054185	A1	20070308	US 2006-572571	20060317
US 7261975	B2	20070828		
PRAI JP 2003-324100	A	20030917		
WO 2004-JP13687	W	20040917		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The electrolyte solution has an electrolyte salt dissolved in a nonaq. solvent; where the electrolyte solution further contains a pentafluorophenyl compound C6F5-OR1 (R1 = substituent selected from C2-12 alkyl carbonyl, C7-18 aryloxy carbonyl and/or C1-12 alkane sulfonyl group; and at least one H atom of the substituent may be substituted by a halogen

atom or an C6-18 aryl group) and a vinylene carbonate and/or 1,3-propane sultone. The battery has a cathode, an anode, and the above electrolyte solution.

- IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C\*]  
 IPCR C07C0309-00 [I,C\*]; C07C0309-66 [I,A]; H01M0006-16 [N,C\*]; H01M0006-16 [N,A]; H01M0010-36 [I,C\*]; H01M0010-36 [N,A]  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 IT Battery electrolytes  
 (electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)  
 IT Secondary batteries  
 (lithium; electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)  
 IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 623-53-0, Methyl ethyl carbonate 7782-42-5, Graphite, uses 12057-17-9, Lithium manganese oxide (LiMn2O4) 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)  
 IT 96-48-0 827-52-1, Cyclohexyl benzene 872-36-6, Vinylene carbonate 1120-71-4, 1,3-Propane sultone 1717-84-6 2049-95-8, tert-Pentyl benzene 5129-37-3, Butyl pivalate 19220-93-0, Pentafluorophenyl acetate 36919-03-6, Methyl pentafluorophenyl carbonate 71573-77-8, **Dipropargyl oxalate** 161912-36-3  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)  
 IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 623-53-0, Methyl ethyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing pentafluorophenyloxy compds. for secondary lithium batteries)  
 RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



- RN 108-32-7 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



- RN 623-53-0 HCAPLUS  
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



IT 872-36-6, Vinylene carbonate 71573-77-8, Dipropargyl  
 oxalate  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing pentafluorophenyl oxy compds. for secondary  
 lithium batteries)  
 RN 872-36-6 HCAPLUS  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 71573-77-8 HCAPLUS  
 CN Ethanedioic acid, 1,2-di-2-propyn-1-yl ester (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsui Chemicals Inc	1999			JP 11-329496 A	HCAPLUS
Sony Corp	1997			JP 09-050822 A	HCAPLUS
Sony Corp	2000			JP 2000156243 A	HCAPLUS
Toyota Central Research	2000			JP 2000323169 A	HCAPLUS
Ube Industries Ltd	1999			JP 11-329490 A	HCAPLUS
Ube Industries Ltd	2000			JP 2000003724 A	HCAPLUS
Ube Industries Ltd	2000			US 6033809 A	HCAPLUS
Ube Industries Ltd	2003			WO 03077351 A1	HCAPLUS
Ube Industries Ltd	2003			JP 2003272700 A	HCAPLUS

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L93 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2010 ACS ON STN  
 AN 2005:76450 HCAPLUS Full-text  
 DN 142:180441  
 TI Nonaqueous electrolyte solution for secondary lithium battery  
 and the battery  
 IN Abe, Koji; Miyoshi, Kazuhiko; Kawata, Takaaki  
 PA Ube Industries, Ltd., Japan  
 SO PCT Int. Appl., 48 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005008829	A1	20050127	WO 2004-JP10194	20040716

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
 LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,  
 NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,  
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
 SN, TD, TG

CA 2532579	A1	20050127	CA 2004-2532579	20040716
EP 1650826	A1	20060426	EP 2004-747660	20040716
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1853307	A	20061025	CN 2004-80026556	20040716
CN 100517853	C	20090722		
ZA 2006000431	A	20070425	ZA 2006-431	20060116
IN 2006CN00200	A	20070629	IN 2006-CN200	20060116
IN 225889	A1	20090109		
KR 2006035767	A	20060426	KR 2006-701080	20060117
US 20060177742	A1	20060810	<del>US 2006-564852</del>	20060117
IN 2007CN04612	A	20080328	IN 2007-CN4612	20071016
PRAI JP 2003-198421	A	20030717		
JP 2003-383403	A	20031113		
WO 2004-JP10194	W	20040716		
IN 2006-CN200	A3	20060116		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT  
 OS MARPAT 142:180441  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The electrolyte solution contains 0.01-10% vinyl carbonate compound I (R1 and R2 = H or C1-4 alkyl groups) and 0.01-10% alkyne compds. selected from II-VII (R's and Y's defined; and x and p = 1 or 2).

IPCI H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C\*]; H01M0004-02 [ICS,7]; H01M0004-58 [ICS,7]

IPCR H01M0004-02 [N,C\*]; H01M0004-50 [N,C\*]; H01M0004-50 [N,A]; H01M0004-52 [N,C\*]; H01M0004-52 [N,A]; H01M0004-58 [N,C\*]; H01M0004-58 [N,A]; H01M0010-36 [I,C\*]; H01M0010-36 [I,A]; H01M0010-42 [N,C\*]; H01M0010-42 [N,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds. for secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate 90076-65-6  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds. for secondary lithium batteries)

IT 98-06-6, tert-Butylbenzene 452-10-8, 2,4-Difluoroanisole 462-06-6, Fluorobenzene 536-74-3, Phenylacetylene 827-52-1, Cyclohexylbenzene 872-36-6, Vinylene carbonate 1072-53-3, Ethylene sulfate 1120-71-4, 1,3-Propanesultone 1717-84-6 2049-95-8, tert-Amylbenzene 16156-58-4, 2-Propynyl methanesulfonate 32042-39-0 36677-73-3 61764-71-4 71573-77-8, Di(2-propynyl) oxalate 79493-91-7, Dipropargyl carbonate 131166-79-5 197244-15-8 347396-84-3 406725-07-3 833427-83-1  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.)



for secondary lithium batteries)

IT 56-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)  
 RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 623-53-0 HCAPLUS  
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



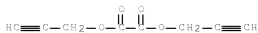
IT 872-36-6, Vinylene carbonate 61764-71-4  
 71573-77-8, Di(2-propynyl) oxalate 79493-91-7,  
 Dipropargyl carbonate 131166-79-5 347396-84-3  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (electrolyte solns. containing vinyl carbonate derivs. and alkyne compds.  
 for secondary lithium batteries)  
 RN 872-36-6 HCAPLUS  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 61764-71-4 HCAPLUS  
 CN Carbonic acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)

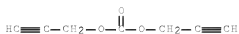


RN 71573-77-8 HCAPLUS  
 CN Ethanedioic acid, 1,2-di-2-propyn-1-yl ester (CA INDEX NAME)



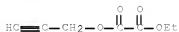
RN 79493-91-7 HCAPLUS

CN 2-Propyn-1-ol, 1,1'-carbonate (CA INDEX NAME)



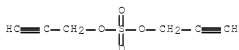
RN 131166-79-5 HCAPLUS

CN Ethanedioic acid, 1-ethyl 2-(2-propyn-1-yl) ester (CA INDEX NAME)



RN 347396-84-3 HCAPLUS

CN 2-Propyn-1-ol, sulfate (2:1) (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RYP)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Matsushita Electric Ind	2003			JP 2003142075 A	HCAPLUS
Mitsubishi Chemical Cor	2004			JP 2004265848 A	HCAPLUS
Mitsui Chemicals Inc	2002			JP 2002343426 A	HCAPLUS
Ube Industries Ltd	2000			JP 2000195545 A	HCAPLUS
Ube Industries Ltd	2001			ICN 1277468 A	HCAPLUS
Ube Industries Ltd	2001			JP 2001043895 A	HCAPLUS
Ube Industries Ltd	2002			JP 2002124297 A	HCAPLUS
Ube Industries Ltd	2003			JP 2003059529 A	HCAPLUS

L93 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2002:313468 HCAPLUS [Full-text](#)

DN 136:343311

TI Nonaqueous electrolyte solution and secondary lithium battery  
using the electrolyte solutionIN Hamamoto, Shunichi; Abe, Hiroshi; Yuguchi, Motoshi; Ushikoshi, Yoshihiro;  
Matsumori, Yasuo

PA Ube Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002124297	A	20020426	JP 2000-313549	20001013
	JP 3823712	B2	20060920		
PRAI	JP 2000-313549		20001013		
OS	MARPAT 136:343311				

AB The electrolyte solution contains  $\geq 1$  alkynyl compound  
R1C.tpibond.C(CR2R3)nOXY, where X = -SO-, -SO2-, or -COCO-; Y = C1-12 alkyl,  
alkenyl, alkynyl group, C3-6 cycloalkyl group, C6-12 aryl group, or C7-12  
aralkyl group; R1-3 = C1-12 alkyl, alkenyl, alkynyl group, C3-6 cycloalkyl  
group, C6-12 aryl group, or C7-12 aralkyl group, R2 and R3 may join together  
forming a C3-6 cycloalkyl group, and n = 1 or 2.

IPCI H01M0010-40 [I,A]; H01M0010-36 [I,C\*]  
IPCR H01M0010-36 [I,C\*]; H01M0010-40 [I,A]

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes  
(nonaq. electrolyte solns. containing alkynyl compds. for secondary lithium  
batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl  
carbonate 108-32-7, Propylene carbonate 616-38-6,  
Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate  
RL: DEV (Device component use); USES (Uses)  
(nonaq. electrolyte solns. containing alkynyl compds. for secondary lithium  
batteries)

IT 1999-25-8 19828-82-1 71573-77-8,  
**Di-(2-propynyl) oxalate** 417706-29-7 417706-30-0  
RL: MOA (Modifier or additive use); USES (Uses)  
(nonaq. electrolyte solns. containing alkynyl compds. for secondary lithium  
batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl  
carbonate 108-32-7, Propylene carbonate 616-38-6,  
Dimethyl carbonate  
RL: DEV (Device component use); USES (Uses)  
(nonaq. electrolyte solns. containing alkynyl compds. for secondary lithium  
batteries)

RN 96-49-1 HCAPLUS  
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS  
CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS  
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



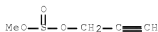
RN 616-38-6 HCAPLUS  
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



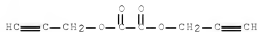
IT 1899-25-8 19828-82-1 71573-77-8,  
**Di-(2-propynyl) oxalate**  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (nonaq. electrolyte solns. containing alkynyl compds. for secondary lithium  
 batteries)  
 RN 1899-25-8 HCAPLUS  
 CN 2-Propyn-1-ol, sulfite (2:1) (8CI, 9CI) (CA INDEX NAME)



RN 19828-82-1 HCAPLUS  
 CN Sulfurous acid, methyl 2-propyn-1-yl ester (CA INDEX NAME)



RN 71573-77-8 HCAPLUS  
 CN Ethanedioic acid, 1,2-di-2-propyn-1-yl ester (CA INDEX NAME)



OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L93 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2001:489871 HCAPLUS [Full-text](#)  
 DN 135:79494  
 TI Alkali metal battery activated with a nonaqueous electrolyte  
 having a sulfate additive  
 IN Gan, Hong; Takeuchi, Esther S.  
 PA Wilson Greatbatch Ltd., USA  
 SO U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of U.S. 6,180,283.  
 CODEN: USXXCO  
 DT Patent

LA English  
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 20010006751	A1	20010705	US 2001-772680	20010130
	US 6444360	B2	20020903		
	US 6013394	A	20000111	US 1998-9557	19980120
	US 6180283	B1	20010130	US 1999-460035	19991213
PRAI	US 1998-9557	A2	19980120		
	US 1999-460035	A2	19991213		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OS MARPAT 135:79494

AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high current capacity, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, 1,2-dimethoxyethane and a sulfate additive having at least one unsatd. hydrocarbon containing a C(sp or sp2)-C(sp3) bond unit having the C(sp3) carbon directly connected to the -OSO3- functional group.

INCL 429340000

IPCI H01M0010-40 [ICM]; H01M0010-36 [ICM,C\*]

IPCR H01M0006-16 [N,C\*]; H01M0006-16 [N,A]; H01M0010-36 [I,C\*]; H01M0010-40 [I,A]

NCL 429/340.000; 429/231.200; 429/231.950; 429/332.000; 429/333.000; 429/334.000; 429/335.000; 429/215.000; 429/205.000; 429/219.000; 429/220.000; 429/231.500; 429/325.000; 429/328.000; 429/330.000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery electrolytes

(alkali metal battery activated with nonaq. electrolyte having sulfate additive)

IT Carbon black, uses

Fluoropolymers, uses

RL: MOA (Modifier or additive use); USES (Uses)

(alkali metal battery activated with nonaq. electrolyte having sulfate additive)

IT 67-68-5, DmsO, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses

79-20-9, Methyl acetate 96-48-0,  $\gamma$ -Butyrolactone 96-49-1

, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3,

Diisopropyl ether 108-29-2,  $\gamma$ -Valerolactone 108-32-7,

Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane

111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide

143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6,

Dimethyl carbonate 623-53-0, Ethyl methyl carbonate

623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane

872-50-4, uses 2923-17-3 2923-20-8 4437-85-8, Butylene

carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane 7439-93-2, Lithium, uses

7791-03-9, Lithium perchlorate 11099-11-9, Vanadium oxide 11105-02-5,

Silver vanadium oxide 12057-24-8, Lithia, uses 12789-09-2, Copper

vanadium oxide 12798-95-7 13453-75-3, Lithium fluorosulfate

14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium

tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3,

Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate

21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium

hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7,

Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate

90076-65-6 132404-42-3 135023-75-5, Lithium phenylsulfate

181183-66-4, Copper silver vanadium oxide

RL: DEV (Device component use); USES (Uses)

(alkali metal battery activated with nonaq. electrolyte having sulfate additive)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 18495-74-4, Dibenzyl sulfate 27063-40-7 347396-84-3 347396-86-5  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (alkali metal battery activated with nonaq. electrolyte having sulfate additive)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 12597-68-1, stainless steel, uses  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (powder; alkali metal battery activated with nonaq. electrolyte having sulfate additive)

IT 36-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-22-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-3, Dipropyl carbonate 4437-85-8, Butylene carbonate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (alkali metal battery activated with nonaq. electrolyte having sulfate additive)

RN 96-49-1 HCAPLUS  
 CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 105-58-8 HCAPLUS  
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



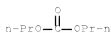
RN 616-38-6 HCAPLUS  
 CN Carbonic acid, dimethyl ester (CA INDEX NAME)



RN 623-53-0 HCAPLUS  
 CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)



RN 623-96-1 HCAPLUS  
 CN Carbonic acid, dipropyl ester (CA INDEX NAME)



RN 4437-85-8 HCAPLUS  
 CN 1,3-Dioxolan-2-one, 4-ethyl- (CA INDEX NAME)



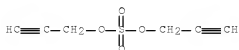
RN 35363-40-7 HCAPLUS  
 CN Carbonic acid, ethyl propyl ester (CA INDEX NAME)



RN 56525-42-9 HCAPLUS  
 CN Carbonic acid, methyl propyl ester (CA INDEX NAME)



IT 347396-84-3  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (alkali metal battery activated with nonaq. electrolyte  
 having sulfate additive)  
 RN 347396-84-3 HCAPLUS  
 CN 2-Propyn-1-ol, sulfate (2:1) (9CI) (CA INDEX NAME)



=> d his

(FILE 'HOME' ENTERED AT 15:42:03 ON 01 JUL 2010)  
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 15:42:21 ON 01 JUL 2010

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      E ABE/AU
L1      4 S E3
      E ABE K/AU
L2      1873 S E3
      E ABE KO/AU
L3      766 S E3,E4,E20
      E KOJI/AU
L4      3 S E3,E4
      E KO JI/AU
      E KO/AU
L5      2 S E3
      E KO J/AU
L6      61 S E3
      E KO JI/AU
      E MIYOSHI/AU
L7      2 S E3
      E MIYOSHI K/AU
L8      151 S E3
L9      31 S E31
      E KAZUHIRO/AU
      E KAZU/AU
      E KUWATA/AU
L10     2 S E3
      E KUWATA T/AU
L11     100 S E3,E5
      E TAKAKI/AU
L12     2 S E3
      E TAKA AKI/AU
      E TAKAKI/AU
L13     1 S E3
      E TAKAKI K/AU
L14     80 S E3
      E UBE/CO
      E UBE?/CO,PA,CS
      E UBE I/CO
L15     10646 S E4-E35/CO,PA,CS
      E E29+ALL
L16     11623 S E2+RT OR E2-E33/PA,CS
L17     20449 S UBE?/CO,PA,CS
L18     1 S US20060177742/PN OR (US2006-564852 OR WO2004-JP10194 OR JP200
      SEL RN

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FILE 'REGISTRY' ENTERED AT 15:47:34 ON 01 JUL 2010

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L19     26 S E1-E26
L20     1 S L19 AND C8H6O4
L21     2 S 96-49-1 OR 108-32-7
L22     1 S 872-36-6
L23     1 S L19 AND C6H6O4S
L24     1 S L19 AND C7H8O4
L25     21 S L19 NOT L21-L24
L26     3 S L25 AND (C7H6O3 OR C4H8O3 OR C5H6O3)
L27     STR

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L28 50 S L27  
 L29 260014 S L27 FUL  
 L30 STR  
 L31 50 S L30 CSS SAM SUB=L29  
 L32 SCR 2127 OR 2043  
 L33 5 S L30 NOT L32 CSS SAM SUB=L29  
 L34 3033 S L30 NOT L32 CSS FUL SUB=L29  
 SAV TEMP L34 LAURA564A/A  
 L35 2853 S L34 NOT IDS/CI  
 L36 2853 S L26,L35  
 L37 STR  
 L38 50 S L37 NOT L32 SAM SUB=L29  
 L39 16585 S L37 NOT L32 FUL SUB=L29  
 SAV TEMP L39 LAURA564B/A  
 L40 1606 S L39 AND OCOC2/ES AND 1/NR  
 L41 938 S L40 AND 3/ELC.SUB  
 L42 295 S L41 AND 3/O  
 L43 261 S L42 NOT ((D OR T)/ELS OR ION OR LABELED OR 11C# OR 12C# OR 13  
 L44 249 S L43 NOT (BR OR CL OR F OR I)/ELS  
 L45 204 S L44 AND 3-11/C  
 L46 STR  
 L47 10 S L46 CSS SAM SUB=L40  
 L48 STR L46  
 L49 8 S L48 CSS SAM SUB=L40  
 L50 150 S L48 CSS FUL SUB=L40  
 L51 111 S L50 AND L43  
 SAV TEMP L51 LAURA564C/A  
 L52 111 S L21,L22,L51

FILE 'HCAPLUS' ENTERED AT 16:05:32 ON 01 JUL 2010

L53 55056 S L36  
 L54 22474 S L52  
 L55 8050 S L53 AND L54  
 L56 4537 S L55 AND H01M/IPC, IC, ICM, ICS, EPC  
 L57 6489 S L55 AND BATTERY  
 E BATTERY/CT  
 L58 73059 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7+OLD,NT  
 E E8+ALL  
 L59 12958 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT  
 E BATTERIES/CT  
 E E3+ALL  
 L60 177442 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT  
 L61 6327 S L55 AND L58-L60  
 L62 6591 S L56,L57,L61  
 L63 1417 S L62 AND PY<=2006 NOT P/DT  
 L64 3222 S L62 AND (PD<=20060117 OR PRD<=20060117 OR AD<=20060117) NOT L  
 L65 148 S L1-L18 AND L62  
 L66 4660 S L63-L65

FILE 'REGISTRY' ENTERED AT 16:07:56 ON 01 JUL 2010

L67 STR  
 L68 50 S L67 SAM  
 L69 50 S L67 NOT L32 SAM  
 L70 394859 S L67 NOT L32 FUL  
 L71 STR L67  
 L72 50 S L71 CSS SAM SUB=L70  
 L73 161437 S L71 CSS FUL SUB=L70  
 L74 STR L67  
 L75 1 S L74 SAM SUB=L73  
 L76 173 S L74 FUL SUB=L73

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      SAV TEMP L76 LAURA564D/A
L77      148 S L76 NOT (N OR P OR SI OR B)/ELS
L78      135 S L77 NOT (BR OR CL OR F OR I)/ELS
L79      131 S L78 AND 1/S
L80      4 S L78 NOT L79
L81      3 S L80 NOT CCS/CI
L82      4 S L20,L23,L24,L81
L83      130 S L79 NOT L82

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FILE 'HCAPLUS' ENTERED AT 16:17:08 ON 01 JUL 2010

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L84      21 S L82
L85      917 S L83
L86      6 S L66 AND L84
L87      3 S L66 AND L85
L88      6 S L53,L54 AND L84
L89      6 S L53,L54 AND L85
L90      10 S L86-L89
L91      6 S L1-L18 AND L84,L85
L92      10 S L90,L91
          SEL AN DN 1 2 10
L93      7 S L92 NOT E1-E9

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FILE 'REGISTRY' ENTERED AT 16:18:51 ON 01 JUL 2010

FILE 'HCAPLUS' ENTERED AT 16:19:42 ON 01 JUL 2010

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